

U.S. Environmental Protection Agency
Science Advisory Board Hydraulic Fracturing Research Advisory Panel
Public Meeting, May 7-8, 2013
Westin Arlington Gateway Hotel
801 North Glebe Road, Arlington, VA, 22203

Preliminary Agenda, as of May 6, 2013

Purpose: For individual members of the Panel to provide expert comments on charge questions associated with the research described in EPA's *Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources: Progress Report*, which was released in December 2012.

Tuesday, May 7, 2013

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| 9:00 a.m. | Opening and Welcoming Remarks | Mr. Edward Hanlon <i>Designated Federal Officer EPA Science Advisory Board Staff Office</i> |
| | | Mr. Christopher T. Zarba <i>Acting Director EPA Science Advisory Board Staff Office</i> |
| 9:10 a.m. | Introduction of Members and Review of Agenda | Dr. David A. Dzombak <i>Chair</i> |
| 9:20 a.m. | EPA's Overview of December 2012 <i>Progress Report</i> | Ms. Ramona Trovato EPA Office of Research and Development |
| | <i>Panel Members' Clarifying Questions</i> | Panelists |
| 9:30 a.m. | Public Comments | Registered Speakers |
| 10:20 a.m. | Break | |
| 10:35 a.m. | Process for Responding to EPA Charge Questions | Dr. David A. Dzombak and Panel Members |

Tuesday, May 7, 2013 (continued)

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| 10:40 a.m. | EPA Technical Presentation on Water Acquisition Phase of the Hydraulic Fracturing Water Cycle | Dr. Jennifer Orme-Zavaleta EPA Office of Research and Development |
| | <i>Panel Members' Clarifying Questions</i> | Panelists |
| 10:55 a.m. | Responses to Charge Question 3: Water Availability | Lead Discussants: Dr. Katherine Bennett Ensor Dr. Daniel J. Goode |
| 11:30 a.m. | Lunch | |
| 12:30 p.m. | Responses to Charge Question 3: Water Availability (continued) | Lead Discussants: Dr. Katherine Bennett Ensor Dr. Daniel J. Goode |
| 12:45 p.m. | Responses to Charge Question 1: Spatial and Temporal Scales for Water Quality Analysis | Lead Discussants: Dr. Peter Bloomfield Dr. Elizabeth W. Boyer |
| 1:25 p.m. | Responses to Charge Question 2: Water Quality Characteristics | Lead Discussants: Dr. Bruce D. Honeyman Dr. Dawn S. Kaback |
| 2:05 p.m. | EPA Technical Presentation on Chemical Mixing Phase of the Hydraulic Fracturing Water Cycle | Ms. Jeanne Briskin EPA Office of Research and Development |
| | <i>Panel Members' Clarifying Questions</i> | Panelists |
| 2:15 p.m. | Responses to Charge Question 4: Fluid Composition and Potential Impacts to Drinking Water Resources | Lead Discussants: Dr. Stephen W. Almond Dr. James V. Bruckner Dr. Eric P. Smith |
| 3:05 p.m. | Break | |

Tuesday, May 7, 2013 (continued)

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| 3:20 p.m. | Responses to Charge Question 5: Historical Changes and Current Trends in Fluid Composition | Lead Discussants: Mr. Walter R. Hufford Mr. Dean Malouta |
| 4:00 p.m. | Responses to Charge Question 6: Indicator Chemicals | Lead Discussants: Dr. Richard F. Jack Dr. Abby A. Li |
| 4:40 p.m. | EPA Technical Presentation on Flowback and Produced Water Phase of the Hydraulic Fracturing Water Cycle | Ms. Jeanne Briskin EPA Office of Research and Development |
| | <i>Panel Members' Clarifying Questions</i> | Panelists |
| 4:50 p.m. | Responses to Charge Question 9: Composition of Flowback and Produced Water | Lead Discussants: Dr. Steven R. Bohlen Dr. Shari Dunn-Norman |
| 5:30 p.m. | Recess for the Day | Mr. Edward Hanlon |

Wednesday, May 8, 2013

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| 8:00 a.m. | Reconvene | Mr. Edward Hanlon |
| 8:00 a.m. | Responses to Charge Question 10: Assessing How Spills or Leaks May Impact Drinking Water Resources | Lead Discussants: Dr. Joseph J. DeGeorge Dr. Elaine M. Faustman Dr. Joseph N. Ryan |

Wednesday, May 8, 2013 (continued)

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| 8:55 a.m. | EPA Technical Presentation on Wastewater Treatment and Waste Disposal Water Phase of the Hydraulic Fracturing Water Cycle | Dr. Christopher Impellitteri EPA Office of Research and Development |
| | <i>Panel Members' Clarifying Questions</i> | Panelists |
| 9:05 a.m. | Responses to Charge Question 11: Wastewater Treatment and Waste Disposal Chemicals | Lead Discussant: Dr. Joel Ducoste |
| 9:55 a.m. | Break | |
| 10:10 a.m. | Responses to Charge Question 12: Trends in Wastewater Management that May Affect Hydraulic Fracturing Wastewater | Lead Discussants: Dr. Stephen J. Randtke Dr. Paul K. Westerhoff |
| 11:00 a.m. | EPA Technical Presentation on Well Injection Phase of the Hydraulic Fracturing Water Cycle | Ms. Jeanne Briskin EPA Office of Research and Development |
| | <i>Panel Members' Clarifying Questions</i> | Panelists |
| 11:15 a.m. | Responses to Charge Question 7: Subsurface Fluid Migration Scenarios | Lead Discussants: Dr. E. Scott Bair Dr. Cass T. Miller Dr. James E. Saiers |
| 11:30 a.m. | Lunch | |
| 12:30 p.m. | Responses to Charge Question 7: Subsurface Fluid Migration Scenarios (continued) | Lead Discussants: Dr. E. Scott Bair Dr. Cass T. Miller Dr. James E. Saiers |

Wednesday, May 8, 2013 (continued)

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| 1:00 p.m. | Responses to Charge Question 8: Effectiveness of Well Construction and Operation Practices | Lead Discussants: Dr. Thomas L. Davis Mr. John V. Fontana Dr. Laura J. Pyrak-Nolte Dr. Azra N. Tutuncu |
| 2:10 p.m. | Chair's Comments | Dr. David A. Dzombak |
| 2:20 p.m. | Clarifying Comments from Members of the Public¹ | Registered Speakers |
| 2:50 p.m. | Wrap Up and Remaining Issues, Action Items and Next Steps | Dr. David A. Dzombak and Panel Members |
| 3:00 p.m. | Adjourn | Mr. Edward Hanlon |

¹ Members of the public wishing to provide short clarifying comments near the end of the meeting on May 8, 2013 are asked to contact the DFO in person or by email (hanlon.edward@epa.gov) before 12:00 p.m. noon, May 8, 2013.